Official

#8 Recon mail 1/30/03

1-28-03

PATENT APPLICATION
Attorney Docket No. D/96602Q2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Robert J. Meyer et al.
Application No.: 09/362,020
Filed: 7/27/1999
Examiner: Twyler Marie Lamb
Confirmation No. 6310
Art Unit: 2622
Title: **NON-PRINTING PATTERNS FOR IMPROVING FONT PRINT QUALITY**

CERTIFICATE OF TRANSMISSION
I hereby certify that this correspondence is being facsimile transmitted to the U.S. Patent and Trademark Office (Fax No. (703) 872-9315, on:

1/27/2003
(Date of transmission)

Francie S. LePore

Commissioner for Patents
Washington, D.C. 20231

Sir:

RESPONSE

In Response to the Office Action of October 25, 2002, Applicants have carefully considered the rejections of the Examiner in the above-identified application. In light of this consideration, Applicants believe that the claims remain allowable. Applicants respectfully request reconsideration of the rejection of the claims now pending in the application.

In the first Office Action of February 28, 2002, claims 1-7 where rejected under 35 U.S.C. §101 as not being within the statutory classes. Claims 1-4, 8, 9, 13-15, and 19-20 where rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,038,039 to Zeng (hereinafter Zeng). Claims 5-7, 10-12, and 16-18 where rejected under 35 U.S.C. §103(a) as being

DOCKETED - PAS

unpatentable over Zeng in view of U.S. Patent No. 5,459,828, to Zack et al. (hereinafter Zack).

In the second Office Action of August 27, 2002, claims 1-4, 8, 9, 13-15, and 19-20 where rejected under 35 U.S.C. §102(e) as being anticipated by Zeng. Claims 5-7, 10-12, and 16-18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Zeng in view of Zack.

In this third Office Action of October 25, 2002, claims 1-4, 8, 9, 13-15, and 19-20 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 5,706,046 to Ekl et al. (hereinafter Eki). Claims 5-7, 10-12, and 16-18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Eki in view of Zack.

Grateful acknowledgement is herein made to the Examiner for withdrawing the finality of the second office action. We are pleased that the Examiner found the Applicants' 35 U.S.C. §116 arguments persuasive, and has thereby reconsidered the application.

Claims 1-4, 8, 9, 13-15, and 19-20 are rejected under 35 U.S.C. §102(e) as being anticipated by a U.S. Patent to Eki. Eki provides an image forming apparatus including a bit map data generating section for generating binary dot data for each color from image data, an image memory for storing the dot data, an edge dot discriminating section for discriminating edge dots positioned in an edge section, such as a curved-line section, a slanted-line section of characters, graphics, photo images, etc. in dot data for black stored in the image memory, and a dot modulating circuit for modulating the dot data so that the edge dots and printing dots other than black ones become smaller than black printing dots other than the edge dots. With this arrangement, since linear tone can be obtained even in a section with a deep color, excellent tone can be obtained in multi-color printing such as full-color printing. Therefore,

reproducibility of tone of binarized image data can be improved, and jaggedness in an edge section can be improved so as to have a smooth line.

Nowhere within Eki is there mention or teaching of auxiliary pixels, either by name or by functional equivalence. Auxiliary pixels are thoroughly explained in the applicant's specification. They are non-printing in effect pixels which never-the-less have a printing effect upon the original pixels which they neighbor, by changing the charge distribution and thereby the toner pile distribution, as will be well understood by one skilled in the art in view of the application. Please see pages 8-10 starting with lines 22-35, on page 8, and ending at line 5 of page 10. Please also see the discussion of Figures 4-6 for explanation of the operation of the auxiliary pixel in combination with the toner cloud to change the toner piles upon the substrate.

The dot modulating circuit as taught by Eki is similar in intent to the Resolution Enhancement Technology (RET) prior art discussed in the application. The RET example provided in the application was an attempt to circumvent confusion over what constitutes the teaching provided by the applicant, by contrasting that teaching against the prior art RET background. Eki seeks to effect a similar effect by making edge dots (other than black ones) smaller and thus improve jaggedness in an edge section. An auxiliary pixel is not for edge smoothing so as to render an image to better please the human eye. An auxiliary pixel is directed to the controlled arrangement of charge so as to better manipulate the depositing of toner piles on a photoreceptor or page.

The application goes to considerable length to describe just what constitutes an auxiliary pixel. None of that teaching is found in Eki. Nor do any of the citations provided to Eki teach the Applicants' invention for the substitution of auxiliary pixels into a bitmap which are non-printing in effect in and of themselves (page 9 line 21), i.e. pixels which in effect do not alter the print intended by the bitmap, rather they assure it (see page 9 lines 11-22 of the application). The citation made to Eki at column 15 lines 19-26 discusses "non-printing dots" which are NOT analogous to auxiliary pixels. A "dot pattern"

(as found at column 15 line 19 of Eki) is a device for achieving halftones. In Eki the dots are turned on or off so as to achieve a halftone and equate to ones or zeros in a digital system. As such the expected result in platen charge as rendered is either entirely there or entirely discharged for that platen location corresponding to the bit map. The printing and non-printing dots of Eki are the same as employed in all digital printing systems. As such the printing and non-printing dots of Eki are concerned with a desired print bitmap.

In contrast, the Applicant's invention is concerned with the developed charge upon a platen (be it paper, drum, or belt etc.) The Applicant's proposed system also employs "printing" pixels and "non-printing" pixel locations in bitmaps much as Eki describes. However, the Applicant's inventive novelty is found in the additional employment of auxiliary pixels. An auxiliary pixel, as substituted into a desired print bitmap, is an indicator for directing a corresponding final developed platen charge differing from the normal "entirely there" or "entirely discharged" state. This developed platen charge while different from its neighbor locations is never-the-less consonant with those neighbors, and most importantly is faithful to the intent of the original bitmap. These non-printing-in-effect pixels are referred to as auxiliary pixels as acknowledgment in their role by proper placement to "encourage a toner cloud close enough to the photoreceptor to mitigate the spreading effect of the surrounding cleaning field". (See page 9 line 28 of the application). As Eki neither teaches, names, or even hints at auxiliary pixels or any of the Applicants' teaching of the invention it cannot serve as a 35 U.S.C. §102 reference. A §102 "anticipation" rejection requires that a single reference teach (i.e., identically describe) each and every element of the rejected claim. That is, §102 anticipation requires that all of the elements and limitations of the claim to be found within a single prior art reference.

Rejections under 35 U.S.C. §102 are proper only when the claimed subject matter is identically disclosed or described in the prior art. In other words, to constitute an anticipation, all material elements recited in a claim must be found in one unit of prior art. In re Marshall, 198 U.S.P.Q. 344 (CCPA 1978). Eki teaches edge smoothing by making edge dots smaller. The

Applicants teach using auxiliary pixels to change the distribution of charge and thereby the toner on a substrate or photoreceptor. Eki does not. The non-printing dots discussed in Eki are not the same as the auxiliary pixels taught by the applicant. Therefore claims 1-4, 8, 9, 13-15, and 19-20 are not anticipated. Allowance of claims 1-4, 8, 9, 13-15, and 19-20 is respectively requested.

The Examiner has rejected dependent claims 5-7, 10-12, and 16-18 under 35 U.S.C. §103(a) as being unpatentable over Eki in view of a U.S. Patent to Zack. As claims 5-7, 10-12, and 16-18 depend from independent claims deemed allowable they should be allowable as well. Allowance of claims 5-7, 10-12, and 16-18 is respectfully requested.

It is respectfully submitted that the present set of claims are patentably distinct over the cited references. In the event the Examiner considers personal contact advantageous to the disposition of this case, she is hereby requested to call the undersigned attorney at (585) 423-6918, Rochester, NY.

Respectfully submitted,

Christopher D. Wait
Attorney for Applicant(s)
Registration No. 43,230
Telephone (585) 423-6918

January 27, 2003
CDW/fsl
Xerox Corporation
Xerox Square 20A
Rochester, New York 14644